## AMENDMENTS TO THE CLAIMS

**This listing of claims will replace all prior versions and listings of claims in the application:**

## LISTING OF CLAIMS:

1. (Cancelled)

2. (Previously Presented) The method of manufacturing an arc tube as claimed in claim 3, wherein said tungsten electrode is subjected to a strong electrolytic polishing process.

3. (Original) A method of manufacturing an arc tube, the arc tube including an arc-tube body, which incorporates a light-emission tube arranged to form a discharge space and has pinch seal portions formed on two sides thereof, the tube being made of quartz glass, and a pair of tungsten electrodes pinch-sealed to the pinch seal portions such that leading ends of the pair of tungsten electrodes project into the discharge space, said manufacturing method comprising:

inserting and disposing the tungsten electrodes, which have an average surface roughness of 3 μm or smaller, into portions of the tube in which the pinch seal portions are formed; and

pinch-sealing the portions of the tube at a temperature equal to or greater than 2000°C, thereby forming the pinch seal portions.

4. (Currently Amended) The arc tube as claimed in claim ~~6~~ 8, wherein the average roughness is 2 μm or smaller.

5. (Original) The method of manufacturing an arc tube as claimed in claim 2, wherein the temperature at which the pinch seal portions are formed is equal to or greater than 2100°C.

6. (Cancelled)

7. (Currently Amended) The method of manufacturing an arc tube as claimed in claim 3, wherein said tungsten electrode has an average surface roughness of ~~between .3 μm and 3 μm~~ 2 μm or smaller.

8. (New) An arc tube comprising:

an arc-tube body which incorporates a light-emission tube having a discharge space and pinch seal portions formed on two sides of said discharge space, said tube being made of a quartz glass; and

a pair of tungsten electrodes pinch-sealed to said pinch seal portions, respectively, such that leading ends of said pair of tungsten electrodes project into said discharge space, wherein

average roughness of a surface of each of said tungsten electrodes in contact with said pinch seal portions is 3 μm or smaller.